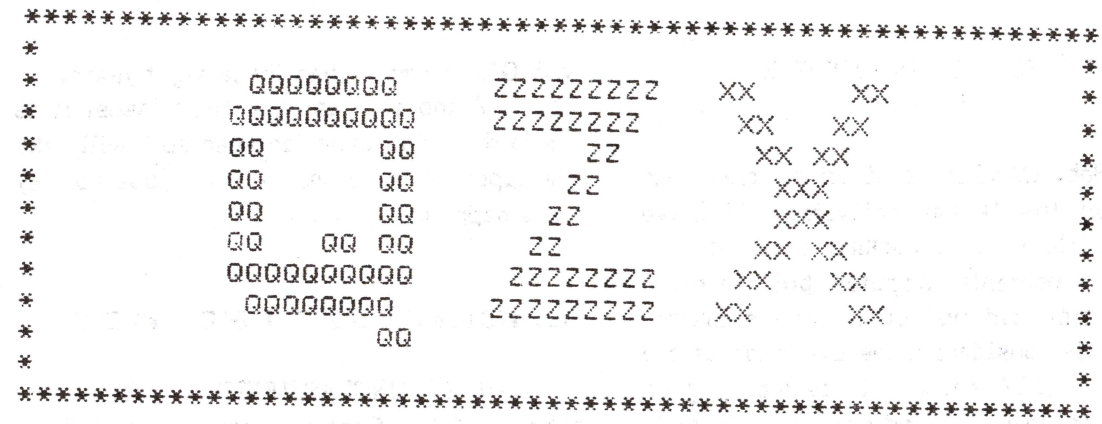
QQQQQQQ ZZZZZZZZZ XX XX
QQQQQQQQQQ ZZZZZZZZ XX XX
QQ QQ ZZ XX XX
QQ QQ ZZ XXX
QQ QQ ZZ XXX
QQ QQ QQ ZZ XX XX
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QQ

The Journal Covering Amateur Radio & Sinclair Computers
ZX80; Micro-Ace; ZX81; TS1000, 1500, & 2068; QL; Z88

Alex. F. Burr, K5XY, Publisher
2025 O'Donnell Drive
Las Cruces, New Mexico
88001

Volume 9 Number 1 ($1.50 / issue) 1990 December

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* 2068 POWER SUPPLY J W Dowell

EDITOR'S NOTES

K5XY

Bob. WA6DLI, sent an article which described the latest activities of Clive Sinclair. He is still working on an MSDOS compatible portable computer, but the exact configuation did not sound too exciting, particularly considering the offerings at the latest COMDEX show. He is working on some advanced integrated circuits with truly inovative memory and parallel processing capabilities. He is also working on a folding bicycle and improvements on his electric car, the C15.

I noticed that the December issue of the Computer Monthly did not carry either of the two Sinclair columns that it has in the past. I hope that this is just a temporary condition. EMSoft, a new QZX advertiser, still had their classified ad in that issue however.

Ken, N9GIH, wrote to say that he was very pleased with the current quality of the technical articles published in the last year. I had nothing to do with them. The best was the series on the SCL chip of the TS1000 by Don Lamen. Unfortunately I have recently heard that he has died. This event is a great loss to the Sinclair community. I am hoping that somebody will try to take his place as a technical writer.

The used TS1000 offered in the unclassified ads last month was gone as soon as the issue hit the mailboxes.

To make sure that there is something for most of our different computers in this issue, I am reprinting a couple of relevent articles from other newsletters. One comes from L.I.S.T., the newsletter of the Long Island Timex Sinclair Group, and the other from NESQLUG, the New England States QL Users Group.

This is the first issue of a new volume. It does not seem that I have been at this for eight years. Nevertheless a significant number of the subscribers have been with QZX for more than these eight years.

Although this is a first issue, it is the last of this calendar year so I will take the opportunity to wish all a joyous holiday and a happy new year.

UNCLASSIFIED ADS

WANTED: UNCLASSIFIED ADS for publication in QZX. Cost is 1 cent for each keystroke (characters, blanks, etc.). Payment must be included with order. This is an excellent way to sell your program or unwanted equipment, ask for help, or find a specific program. Send your ad with payment to QZX, 2025 O'Donnell, Las Cruces, NM 88001.

WANTED: Any information on TUTOR 16 bit Graphic Computer made by Tomy. Edward L. Radtke, 1602 Woodluck Ave., Louisville, Kentucky, 40205, 502-458-7324.

QZX Discount: 15% discount on all orders mentioning QZX. T & C Services (address in ad in this issue).

QZX FRIENDS

WA4BQE -- Ed may visit QZX after Christmas.

And thanks to those who sent me Christmas greetings.

BITS AND BYTES

162 On the TS2068 PRINT "" adds a line feed to the print statement.

163 One can reset the TS2068 by entering

```
RAMDOMIZE USR 0
```

QZX Back Issues as of 1990 NOVEMBER

Month	1982	1983	1984	1985	1986	1987	1988	1989	1990
Jan	#	0	0	7	14	0	29	2	10
Feb	#	0	0	0	4	0	M	4	7
Mr	#	0	0	10	0	M	M	1	16
Ap	#	0	0	7	10	29	9	0	24
May	#	0	0	12	0	M	13	5	14
Jun	#	0	0	M	0	M	3	5	5
Jul	#	0	0	11	M	M	2	4	4
Ag	#	0	0	8	"	M	1	6	3
Sept	#	0	6	M	M	M	0	2	5
Oct	#	0	0	M	6	26	2	5	5
Nov	#	0	14	M	8	M	3	1	0
Dec	0	0	0	10	0	M	0	0	

0 = OUT OF PRINT
M = Many available

Back issues cost
$1.00 if # = 1 to M
$10.00 if # = 0

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BACK ISSUES

The above table lists information on the back issues of QZX that are available. These will be sent post paid. My wife has been after me to throw some of them away because they are taking up a significant amount of room. I hate to throw any out especally if anybody can put them to use in completing their collection or in any other useful way.

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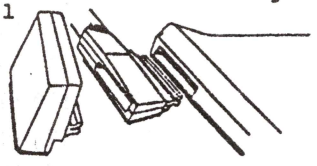

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HIGH PASS FILTER

WA3GLW

This program is the first of three which deals with the design of active filters. The three cases will help you design a high pass, a low pass, and a bandpass active filter. In each case there is an operational amplifier in the circuit. Just which one you use is not critical. It is also not critical at what voltage you run the amplifier. However, if you do not want to change the circuits a bit, you should use a bipolar power supply (that is a power supply with equal + and - voltages). Anything between about 9 and 15 volts will do for the usual junk box op amp. Of course, if you have a specialized application such as a battery operated receiver, you will want to select your op amp carefully. Perhaps using a special low current, low voltage op amp.

The program will work, but perhaps not quite like you expect it to. There are some difficulties with the lines 200-250. See if you can get them into a form which gives you a result that you like. More will be said on this point in the next issue.

```
10 PRINT "HIGH PASS ACTIVE FILTER"
20 PRINT "THE STAGE GAIN SHOULD BE LESS THAN 10"
30 PRINT "ENTER STAGE GAIN
40 INPUT H
45 PRINT H
50 PRINT "ENTER CUTOFF FREQ IN HZ"
60 INPUT F
65 PRINT F
70 PRINT "ENTER DAMPING COEFFICIENT. USE"
80 PRINT "0.707 FOR BUTTERWORTH OR FLAT FILTER"
90 INPUT Z
100 PRINT "ENTER INPUT CAP (C2) IN UF"
110 INPUT C2
115 PRINT C2
120 LET C2 = C2/1000000
130 LET R1 = (2*H+1)/(4*PI*Z*F*C2)
140 LET R2 = Z/(PI*F*C2*92+1/H))
150 LET C1 = C2/H
160 LET C1 = C1*1000000
170 PRINT "R1 = ";R1;" OHMS"
180 PRINT "R2 = ";R2;" OHMS"
190 PRINT "C1 = ";C1;" UF"
200 PRINT "PRESS 1 TO CONTINUE"
210 IF INKEY$  = "" THEN GOTO 210
220 LET A$ = INKEY$
230 IF A$ = "1" THEN CLS
240 GOTO 10
250 IF A$ = "" THEN STOP
9998 SAVE HIGh
9999 GOTO 10
```

JONAS_TERM
by Mike Jonas

Several years ago Mike Mitchell wrote a SuperBASIC program that got the QL on line with a modem.

It was far from perfect, particularly as the QL has difficulty receiving data at the serial port, but it was widely copied in newsletters.

Independently, Mike Jonas wanted to use an unexpanded QL to access a remote computer from home to use an EMACS editor (instead of Quill).

Mike got around a number of the QL's serial port problems with some nifty programming. But CAUTION! As presented Jonas_term is not very well-mannered since it does not send an automatic disconnect signal on hanging up.

It sets up two arrays: one for characters received (chi$), the other for characters sent (cho$). Note that all codes above 127 are duplicated.

Some, such as chi$(8), ch1$(10) and chi$(13) are modified to be in accord with standards used in other systems than the QL. Other changes are made to cho$() characters. Refer to the Concepts section of the QL manual for their significance, but the important one is that CTRL H (HALT) replaces CTRL C.

Thus characters sent or received are those stored in the arrays, not the ones in the QL character set.

The connect Procedure is the nifty bit of programming. It is a one line loop that makes ten consecutive efforts to read incoming data for each byte originating from the QL.

Being a one-liner it is about as fast as SuperBASIC can be and because it focusses on the incoming data stream there is less chance that the serial buffer will be overloaded.

Mike reports that it is quite reliable at 1200 Baud, and as unreliable at 300 Baud as any other program without a modapter.

```
1 REMark by Mike Jonas
5 DEFine PROCedure init
10  LOCal i
15  DIM chi$(255,1),cho$(255,1)
20  FOR i=1 TO 127
25   chi$(i)=CHR$(i) :
chi$(i+128)=CHR$(i)
30   cho$(i)=CHR$(i)
35  END FOR i
40  chi$(8) =CHR$(188) : chi$(136)
=CHR$(188)
45  chi$(10) ="" : chi$(138) =""
50  chi$(13)=CHR$(10) : chi$(141)
=CHR$(10)
55  cho$(16) =CHR$(3)
60  cho$(10) =CHR$(13)
65  cho$(194)=CHR$(8)
70 END DEFine init
75 DEFine PROCedure setup
80   LOCal rates
85   OPEN#3,ser2ir
90   MODE 4: PAPER 7: INK 0: CLS
95  INPUT "(1) - 300, (2) - 1200, or
<return> ";rate$
100  IF rate$='1' THEN BAUD 300 :
ELSE IF rate$='2' THEN BAUD 1200
105 END DEFine init
110 DEFine PROCedure connect
115 REPeat loop:
PRINT#3,cho$(CODE(INKEY$)); : PRINT
chi$(CODE(INKEY$(#3)))&chi$(CODE(IN
KEY$(#3)))&chi$(CODE(INKEY$(#3)))&c
hi$(CODE(INKEY$(#3)))&chi$(CODE(INK
EY$(#3)))&chi$(CODE(INKEY$(#3)))&chi
$(CODE(INKEY$(#3)))&chi$(CODE(INKE
Y$(#3)))&chi$(CODE(INKEY$(#3)))&chi$
(CODE(INKEY$(#3)));
120 END DEFine connect
125 REMark *** main ***
130  init : setup : connect
```

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[From the Aug/Sept/Oct 1990 Sinclair/Echo in the October SWYM]

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S.N.U.G BBS (unverif)	(708) 576-7072
Time Designs (unverif)	(503) 824-2658

Order of Priority of Operators

Operator	Priority
Slicing and Subscripting	12
All Functions	11
**	10
- (Unary Minus)	9
*,/	8
+,- (Binary Minus)	6
=,<=,>=,<,>,<>	5
NOT	4
AND	3
OR	2

Note: Operators of the same priority are evaluated left to right.

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TS2068 TIPS

2068 Power Supply
Make It Cooler & Quieter

I have discovered that programs SAVED to cassette tapes from the TS-2068 can have a very high Noise/Scratch background level making verification and loading a somewhat iffy proposition. The best way to determine if you have this problem is to monitor the signal on the tape aurally during loading. The background noise can be heard before the leader and between the leader and the program. If this condition creates a problem for you, the following will provide a solution.

The TS-2068, when operated from a DC supply voltage of more than 13 volts, creates a superfluous noise on the internal power distribution lines, probably from the action of the switching voltage regulator which supplies the regulated 5 volt supply. Somehow, this noise finds its way to the SPKR/TAPE output of the SCLD chip. For some unknown reason, if the DC supply voltage is reduced to something less than 13 volts this noise disapears. I have found that a supply voltage of about 8 volts gives very good results. There are two drawbacks: At less than 15 volts you get NO COLOR output and the A&J MicroDrive will not work.

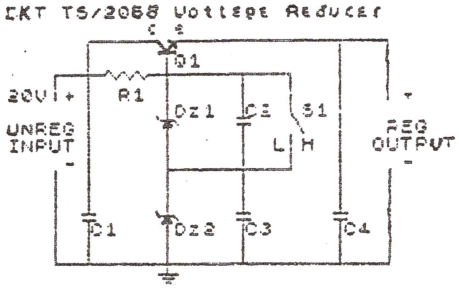
Because I sometimes wish to use the MicroDrive and the Cassette tape storage interchangeably, as in taking programs from the MicroDrive and giving them long term storage on the cheaper cassettes, I developed a voltage reducer to put in the cord of the TS-2068 power unit so that I can change the supply voltage from the normally used 15 volts to a lower 8 volts when I want to save a program to cassette tape. The supply voltage can be changed from 15 volts to 8 volts and back to 15 volts without affecting any of the program or data stored in the TS-2068 memory.

Also, by operating the TS-2068 at a normal 15-16 volt level rather than the power unit's output of about 21 volts, the heat dissapation in the TS-2068 is reduced considerbly.

The schematic of the voltage reducer is self-explanatory. Two words of caution, however. Although the regulating transistor, 2N3055 or similar, is capable of passing many amps of current, it must be well heat-sinked as it dissipates about 5 Watts when delivering the low voltage output. When cutting the cord of the power unit, verify the polarity of the leads when they are reconnected remembering that the outer contact of the concentric connector is positive and the inner contact is negative.

-- J W Dowell

CKT TS/2068 Voltage Reducer



C1 - 0.1mf Cer R1 - 270 ohm/2W
C2 - 100mf/10V Dz1 - 6.4V/.4W
C3 - 100mf/10V Dz2 - 8.1/.4W
C4 - 0.1mf Cer Q1 - 2N3055 ETC

TAPE

2 4 87

J W DOWELL (BEST OF SUM II, p15) says SAVE works better if voltage of power supply is reduced to 8 or 9 volts:- higher voltage adds noise to output signal. He also claims that 15 volts is sufficient in normal use, and this reduces heat dissipation within the computer.

Breadboarded his circuit, which reduces normal voltage of power supply to 15+, and has a switch to reduce further to 8+ volts. Tested. At 15+, computer worked, as did LOAD * from disk. Do not know effect on COLOR. At LOW voltage, SAVE'd a program. This LOADed back (at 15+) without error.

2 7 87

Made PC board abd completed Dowell's circuit. Zeners are 6.8 and 9.1 volts. Used home-made box. Computer works at both high and low voltages. Switching from one to other has no effect on memory.

MEASUREMENTS:

Voltage with computer	ON	OFF
HIGH	15.4	16.0
LOW	8.7	9.2

NOTE: TIMEX Power Supply is about 20.5 volts.

73, K5XY

QZX presents the best software & hardware projects available for the radio amateur. While the contents are believed to be accurate, no warranty is extended on any program or project. No investigation has been made of the claims or reputation of any advertiser. It would be greatly appreciated if all correspondence requiring an answer would be accompanied by a self-addressed stamped envelope (SASE). Copyright by QZX, 1990. All rights reserved, photocopying by permission only.

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